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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,258	02/20/2004	Chen-Liang Chu	251613-1010	7321
24504	7590	11/22/2005	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948			LEE, KYOUNG	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/783,258	Applicant(s) CHU, CHEN-LIANG	
	Examiner Kyoung Lee	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 8-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/08/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

During a telephone conversation with Daniel R. McClure on 11/01/05 a provisional election was made without traverse to prosecute claims 1-7. Affirmation of this election must be made by applicant in replying to this Office action. Claims 8-18 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kachelmeier (U.S. Patent No. 5,741,737).

In claim 1, Kachelmeier disclose a method of fabricating a MOSFER device, comprising:

Forming a gate structure (5) on a substrate, comprising a gate dielectric layer (7) and a conductive layer (6) (see figure1 and column 2, lines 36-38).

Forming a masking layer (13) to cover gate structure and the substrate and etching masking layer to expose a side of gate structure and a region of a surface of the substrate adjacent to the side and performing an oxidation process on the part of the exposed side of gate structure, such that a bottom corner of the exposed gate structure

is oxidized to form a bird's beak structure (see figures 3-4 and column 5 line 30 through column 6, line 55).

Removing masking layer and forming a source region (2) and a drain region (3) in the substrate respectively adjacent to two sides of gate structure, wherein drain region is adjacent to bird's beak structure and the exposed side (see figure 1-4 and column 2 line 36).

In claim 2, Kachelmeier disclose a conductive layer comprising a polysilicon layer (see column 3, lines 11-15).

In claim 5, Kachelmeier disclose a gate dielectric layer comprising an oxide layer (see column 2, lines 65).

In claim 6, Kachelmeier disclose a masking layer comprising a nitride layer (see column 5, lines 60-63).

In claim 7, Kachelmeier disclose a masking layer comprising a silicon nitride layer (see column 5, lines 60-63).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kachelmeier (U.S. Patent No. 5,741,737) in view of Wake (JP 04246862 A).

In claims 3 and 4, Kachelmeier disclose the method as claimed and rejected above, but does not teach the method comprising laterally etching part of gate dielectric layer on the exposed side performed by isotropic etching before performing oxidation process. Wake discloses the method comprising laterally etching part of gate dielectric layer on the exposed side performed by isotropic etching before performing oxidation process (see figure 1-8 and abstract translated in English). It would have been obvious to one of ordinary skill in the art at the time the invention was made to including laterally etching part of gate dielectric layer on the exposed side performed by isotropic etching before performing oxidation process in the method of Kachelmeier in order to improve the beak-down strength between a drain and a source in a non-punch through region and to help control the shape of the bird's beak structure.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyoung Lee whose telephone number is (571) 272-1982. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2812

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KL


JENNIFER KENNEDY
PRIMARY EXAMINER